Appendix C: Explanation of the Biological Monitoring Metrics

MBI – Macroinvertebrate Biotic Index: Developed to assess the impact of oxygen demanding nutrients and organic enrichment on macroinvertebrate populations. Has a wider range of possible scores than the KBI, but the research basis for the larger number of values is lacking. Has more generalization into higher taxanomic units than the KBI. Includes many insect genera and species and other common macroinvertebrates, such as leaches, worms, snails, bivalves, flatworms, and crayfish; some of the insect species scored in the KBI are not scored in the MBI.
Scoring Range: 1 (intolerant) – 11 (tolerant)
        Fully Supporting ≤ 4.5
        Partially Supporting 4.51-5.39
        Non-Supporting ≥ 5.4

KBI – Kansas Biotic Index: Reported here as the Nutrient Oxygen Demand component. Developed specifically for Kansas insects belonging to the 10 orders of insects known to occur in Kansas, this metric is primarily intended to capture the impact of elevated nutrient-oxygen demand. Species are assigned tolerance values and the composite score for the site is the abundance weighted average tolerance score for the population collected.
Scoring Range: 0 (intolerant) – 5 (tolerant)
        Fully Supporting ≤ 2.6
        Partially Supporting 2.61-2.99
        Non-Supporting ≥ 3.0

EPT – Ephemeroptera (mayflies), Plecoptera (stoneflies), Trichoptera (caddisflies): The simple sum of the number of species collected belonging to these three orders. EPT are widely recognized as relatively intolerant to pollution, and generally the presence of greater numbers (both diversity and abundance) of these species is considered indicative of higher water quality.
        Fully Supporting ≥ 13
        Partially Supporting 8-12
        Non-Supporting ≤ 8

EPT % Abundance: The percentage of all individuals collected belonging to these three orders. Large populations of a few species may swing this metric to fully supporting when the EPT index registers a partial or non-supporting condition. This metric does not measure diversity in community structure.
        Fully Supporting ≥ 48%
        Partially Supporting 31-47%
        Non-Supporting ≤ 30%